

Drugs and Alcohol “Abuse” and Testing of Workers for the Presence of Drugs and Alcohol

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Before addressing the issue of workplace drug testing, I would like to clarify the use of the term “abuse” in the title. In many respects the term “abuse” (whether alcohol or any other drug “abuse”) is something of a misnomer. What constitutes drug “abuse” often depends on individual perceptions. Our interpretation and understanding of drug use and drug related harm is often based in historical, social and political processes rather than the level of harm related to the use of a particular drug. For example, some people regard any illicit drug use as “unsafe”, “misuse” or “abuse” on the basis of its illegality rather than levels of related harm. Similarly, many people see alcohol as a social beverage rather than a drug, and therefore do not see a clear relationship between alcohol use and drug related harm.

Rather than think in terms of “abuse” it is more constructive to think in terms of hazardous or harmful use. Harmful or hazardous use is defined as drug use that results in negative outcomes for individuals and/or society. Potential harmful or hazardous use can be determined by the amount used, the frequency of use, or the effects of the drug itself. In addition the context (time and location of use) also determines whether there is any potential for harm or hazard. In the case of the workplace for example, a worker who has four beers at lunchtime during the working day will be a much greater risk to workplace safety than a worker who has four beers after work. But a worker who has 10 beers after work is more likely to have increased absenteeism and low productivity due to hangover effects.

Drug Use and the Workplace

Current health statistics indicate that drug use is a regular part of life for a large number of Australians. While the most common use involves legal drugs such as alcohol and tobacco, illicit drugs are also used by a significant proportion of Australians. For example, 47.8% of Australians aged 14 years or over use alcohol at least weekly, 19.5% are daily tobacco smokers, and 12.9% have recently used marijuana (AIHW, 2002). For most Australians, work is also a regular part of life. It is hardly surprising then that work and drug use overlap. Most people who have a few years of work experience know, or at least suspect, problems occur in the workplace as a result of alcohol and other drug use. This personal knowledge is supported by research evidence linking hazardous and/or harmful use with negative outcomes for both individual workers and work organisations. This includes illness and injury, accidents, high absenteeism, prosecution under occupational health and safety legislation, risk of litigation, poor performance, bad publicity, low morale and low productivity (Richmond, Heather, Holt & Hu, 1992). Employers and workers therefore have legitimate concerns about drug use, as it relates to the safety and productivity of their workplace.

Drug Use and Workplace Testing

Workplace drug testing appeals to simple logic as a solution to the issue of drug use in the workplace. Alcohol (or other drug) use can result in intoxicating effects that can have a detrimental effect on workplace safety and productivity. Testing can identify workers under the influence, and workplace safety and productivity can be improved by removing these workers from the workplace. However, as with most simplistic

approaches to complex issues, a more comprehensive examination of the issues surrounding drug testing and the workplace fails to support this simplistic logic. Few people have a complete understanding of the methods of workplace testing available, the limitations to these tests, and the implications of testing for employers and individual workers. Much of the argument for testing is based on information supplied by the manufacturers of testing equipment or by providers of testing services. It can be argued however, that this information needs to be treated with caution as it may be driven by a vested interest to sell workplace testing products and services.

This paper argues that in general, drug testing is an unreliable method for assessing an individual's fitness for work. In addition, the introduction of testing programs into the workplace can have significant negative consequences for both workers and employers. Before reviewing evidence to support this argument, the different methods of drug testing and the different types of drug tests available will be briefly outlined. While drug testing in the workplace can take the form of pre-employment screening, testing for cause, or random testing, all these testing programs utilise similar methods and types of tests.

Types of Tests

Blood Testing

Sample drawn from donor's blood supply with needle and syringe.

Advantages:

1. Considered the best indicator of intoxication and impairment as it can determine the amount of a drug in the blood.
2. Window of detection narrow, detects drug use within last 24 hours (current/recent use).

Disadvantages:

1. While sample can be obtained onsite, subsequent laboratory analysis is required.
2. Highly intrusive, injury/health risk to both the sample donor and the sample collector (needlestick/infection).
3. Unsuitable method for workplace testing, not utilised in this context and unlikely to be utilised in the future (with possible exception of "for cause" testing in serious [fatal] workplace accidents).

Breath Testing

Sample collected by donor breathing into collection device.

Advantages:

1. Onsite test that can indicate alcohol intoxication.
2. Unintrusive, breath sample only.

3. Window of detection narrow similar to blood tests (current/recent use).

Disadvantages:

1. Can only detect alcohol use.
2. Testing equipment relatively expensive and requires ongoing maintenance and calibration.
3. Cannot detect impairment due to “hangover effects” of heavy alcohol use.
4. Hangover effects can continue to negatively impact on workplace safety and productivity after BAC levels have returned to zero.

Oral Fluid Testing

Sample collected with swab wipe between donor’s cheek and gums.

Advantages:

1. Relatively unintrusive – requires swab wipe only.
2. Window of detection small (current/recent use).
3. Provides “blood equivalent” result.

Disadvantages:

1. While sample can be collected onsite, requires subsequent lab analysis (no onsite test currently available).
2. Can often be difficult to collect sufficient fluid for reliable analysis.
3. While it give a “blood equivalent” test the exact relationship between oral fluid and blood in relation to intoxication is unclear.

Saliva Testing

Sample of saliva collected by swab or pipette.

Advantages:

1. Relatively unintrusive.
2. Window of detection small (current/recent use).

Disadvantages:

1. Onsite tests extremely unreliable, requires subsequent lab testing.
2. Can be difficult to collect sufficient saliva for reliable lab analysis.
3. Relationship between presence of drug in saliva and intoxication or impairment is unclear (Hold, de Boer, Zuidema & Maes, 1995).

Urinalysis

Sample of urine collected from donor. The most common form of workplace testing

Advantages:

1. Least expensive of all testing.

Disadvantages:

1. Extremely intrusive. Effective collection process needs to involve collector physically observing the specimen passing from the donor into specimen container.
2. Long window of detection (days/weeks) cannot detect current use or intoxication/impairment levels.
3. Does not test for presence of drug, rather tests for presence of drug metabolites that result from previous use.

Hair Testing

Sample of hair strands taken from donor.

Advantages:

1. Relatively unintrusive (however large number of hair strands required).

Disadvantages:

1. Requires lab analysis.
2. Easily evaded (shave head and body hair).
3. Window of detection long (months/years) cannot indicate recent or current use, therefore cannot indicate intoxication or impairment.
4. Of little use in workplace testing.

Sweat Testing

Sweat sample obtained from body patch worn by donor for at least a week.

Advantages

1. Unintrusive.

Disadvantages:

1. Requires lab analysis.
2. Highly unreliable (US office of courts found high number of false positives).
3. Window of detection long (weeks) cannot detect current or recent use, therefore cannot indicate intoxication or impairment.
4. Of little use in workplace testing.

Methods of Testing

In addition to these types of tests, the method of drug testing can involve either onsite screening, and/or laboratory testing. As in the case of types of tests, these methods have both advantages and disadvantages.

Onsite Testing

There is no Australian standard for onsite tests, however most rely on US Food and Drug Administration (FDA) standards.

Advantages:

1. Relatively inexpensive.
2. Relatively easy to administer with little training required.

Disadvantages:

1. Can only test for presence of a drug or drug metabolites. Cannot accurately indicate the amount of drug present (therefore cannot detect intoxication or impairment).
2. Of the many currently available onsite tests, only a few of the urinalysis tests currently meet FDA standards. There are no oral fluid or saliva onsite tests that meet FDA standards.
3. The range of drugs that can be detected by onsite tests are limited (usually restricted to three or four of the “big six” –alcohol, marijuana, amphetamine, opiates benzoiazepine and cocaine). Most focus on marijuana and other illicit use.
4. Cannot distinguish between prescribed drug use and illicit drug use (many prescribed drugs are amphetamine or opiate based).
5. Common over the counter medications (and high concentrations of some types of food) can sometimes mask the presence of detectable drugs, or result in false positives.
6. Onsite tests have a much lower level of accuracy and reliability than lab testing.
7. Even the best onsite tests only guarantee an accuracy rate of greater than 95%. This means that for every 100 tests conducted there could be at least 2 false positives and 2 false negatives.

A recent study (ROSITA, 2000a) conducted for European police services by the European Road Transport Commission, carried out an exhaustive evaluation of the currently available onsite tests. This study involved nearly 3,000 subjects and evaluated 15 onsite urine tests and three onsite saliva/oral fluid tests. Only two onsite urinalysis tests (out of 15) came close as reliable and accurate tests, scoring 4 out of 5. The vast majority of onsite urinalysis devices evaluated were unreliable. This study also examined the currently available oral fluid onsite tests and came to the following conclusion:

The present generation of onsite (oral fluid) tests are insufficiently sensitive and/or specific to give reliable results for most classes of drugs (ROSITA, 2000b, p5).

Laboratory Analysis.

Advantages:

1. Much more reliable and accurate than onsite tests.
2. Can detect a much wider range of drugs.
3. Can detect both the presence of drugs, and the amount present.

Disadvantages:

1. Can be expensive and time consuming.
2. While more reliable and accurate than onsite tests, suffers the same disadvantage of onsite tests in regard to window of detection.
3. In most cases, cannot distinguish between prescribed drug use and illicit drug use without donor's medical background.
4. In some cases other prescribed drugs can mask the presence of illicit use, or combine with the chemical agents of the test to produce false positives.
5. Only four Australian laboratories meet current Australian drug testing standards.

While there are only four Australian labs accredited to Australian standards, there are a larger number of clinical pathological services available. However the standards and procedures of these services differ, and in some cases are less than those required for accreditation. As a result, the reliability and accuracy of these tests may come under question. For example in a recent American study (Riley, Lu & Taylor, 2000) the same 931 urine samples were submitted to two independent laboratories for analysis. Of these samples a total of 52 resulted in a different analysis outcome for the two labs. Thirty eight were found to be positive at the first lab, and negative at the second. Fourteen were found to be negative at the first lab and positive at the second. The point to be noted here is that, as in most workplaces, laboratories that test for drugs can be subject to human error and mistakes can be made. In addition, the collection, storage, transportation and analysis of samples requires a large amount of manual handling. Different procedures involved in this handling may result in the samples being contaminated, or the test results being misinterpreted.

From the outline of types and methods of drug test presented above, several conclusions can be drawn:

1. Regardless of the method or type of testing utilised, no test is likely to be 100% right 100% of the time. Most testing programs will result in significant numbers of false positives and false negatives. Even the most reputable, respected, and highly accredited testing laboratories will some times get it wrong.
2. The accuracy and reliability of most onsite tests are questionable.
3. There are no onsite drug tests that can accurately determine intoxication or impairment.
4. The most popular form of workplace testing (urinalysis) is particularly problematic as it detects past, rather than current use. More importantly, drug use that occurs in the immediate four to eight hours prior to sample collection can remain undetected by urinalysis. This undetectable timeframe varies according to

the drug and a number of other individual factors including age, metabolism, body weight and sex. For example, it takes a much longer time after consumption for marijuana metabolites to present in urine samples compared to alcohol.

From these conclusions it is evident that workplace drug testing is not only an unreliable and inaccurate method for determining an individual's fitness for work, but is invalid as a method of detecting impairment or intoxication. Apart from blood tests, there is no test that can determine intoxication levels for many of the most common drugs used. The only drug test (apart from blood tests) that comes close is oral fluid analysis (*not saliva*). However as stated, these tests are only available under laboratory conditions and there is debate as to their reliability as an indicator of intoxication. Little is known about the time taken for different drugs that may be evident in blood to become detectable in oral fluid. These conclusions lead to the question of why workplace drug testing is considered by some to be both important and necessary.

Rationale for Workplace Drug Testing

One of the main arguments put forward by proponents of workplace testing is that employers have legal, moral, and economic concerns regarding work related drug use and as such, testing is necessary to address these concerns. These concerns are no doubt valid. However, a closer examination of these issues indicates that workplace testing is not an effective method for addressing these concerns.

Employers' Legal Obligation

Under various Occupational, Health, Safety and Welfare (OHS&W) legislation, employers are required addresses health and safety risks that they are aware of, including drug use. While testing is offered as a method to address drug related risk in the workplace, it can be argued that this method fails to identify much of this risk, and fails to identify the source of this risk. Reviews of research relating to drug use and the workplace (eg Allsop & Pidd, 2001) suggests that while the relationship between the workplace and drug use is complex, workplace conditions (such as stressors, social controls and the workplace culture) were likely to influence the drug use of workers. However, workplace testing only identifies workers who test positive (who may or may not be a risk), rather than addressing the source of any drug related risk. Testing focuses on worker behaviour (drug use) that may increase drug related risk to safety, without considering workplace conditions that may have contributed to the observed behaviour.

Employers' Moral And Economic Obligations

Employers are obligated to their workers to provide a safe and healthy place to work, and are also obligated to both workers and shareholders to be cost efficient. This efficiency is needed in order to maintain production and profit, and therefore the continuation of employment. One of the main arguments for the introduction of workplace drug testing is that drug use results in significant costs for both employers

and workers. For example it has been claimed that as the majority of drug “abusers” (ie people who engage in harmful or hazardous use) are employed, up to 15% of workplace fatalities, and up to 25% of workplace accidents are the result of drug use. Similarly it has been suggested that workers who use drugs are less productive and take more time off work than other workers do. As such, proponents of drug testing argue that drug tests identify these workers, and are necessary in order to address these costs. However there is very little empirical evidence to support these claims. Evidence that is available suggests that drug use does occur in the workplace, and this use has negative consequences, however it also indicates that workplace drug testing focusing on illicit drug use is unlikely to significantly address these costs.

Research regarding the prevalence of drug use in the workplace, and the relationship between drug use and the workplace is extremely limited, especially in the context of the Australian workplace (Allsop et al, 1997). The evidence that is available suggests that while there are variations across workplaces, the overall consumption patterns of workers are similar to the consumption patterns of the general population (Phillips, 2001). As the majority of drug users are employed it is logical that one indicator of costs to the workplace are the drug related health statistics of the general population. The rationale for this is largely economic. The majority of drug users are employed and when people can no longer work as a result of drug use, there is a cost to the workplace in terms of lost productivity and employee investment.

However, an examination of these statistics indicates that, in terms of lost productivity and employee investment, the major source of work related costs comes from the use of licit drugs, as opposed to the illicit drugs targeted by workplace testing. In 1998 there were 23,313 deaths attributable to drug use (Miller & Draper, 2001), 19,019 related to tobacco, 3,271 related to alcohol and 1023 related to illicit use. Similarly between 1997-1998 there were more than 200,000 hospital admissions due to drug use. Tobacco accounted for 142,525, while 43,032 related to alcohol, and 14,471 related to illicit drug use. These figures alone would suggest that a significant proportion of the workplace costs associated with drug use (in terms of lost productivity and/or loss of employee investment) relate not to illicit use, but to the licit use of alcohol and tobacco. However, the vast majority of workplace testing programs focus on the use of marijuana, amphetamines and other illicit substances.

Drug Use and Workplace Safety

Research that has examined the relationship between drug use and workplace fatalities also indicates that alcohol use plays a major role. For example the National Health and Safety Commission (1998) examined the workplace fatalities that occurred in Australia between 1989 and 1992. Of the 2,389 fatalities recorded, raised blood alcohol content appeared to account for at least 96 (4%) of these deaths. While data on other drug use was only available for about one third of these fatalities, drug use appeared to account for about 2% of the total. Of this 2%, the most common drug involved was amphetamine, and these fatalities occurred in road accidents. Two things can be noted from this study. First, the causal relationship between drug use and the fatality was determined by blood tests that could determine intoxication levels. Second, the major contributor to drug related deaths was alcohol. Despite this

however, most methods of workplace testing cannot determine intoxication, and the most common form of drug use detected by workplace testing is marijuana use.

There is even less evidence regarding the effects of drug use on workplace accidents that do not involve a fatality. Much of the concern about the effects of drug intoxication on accident rates comes from road statistics. While this concern is legitimate, as pointed out most workplace tests do not test for intoxication. Research that has examined the relationship between workers who test positive to workplace drug tests and workplace accident rates (eg Normand, Salyard & Mahoney, 1990; Zwerling & Silver, 1992) consistently fails to show any association. In a review of the available evidence Normand (1994) concluded that there was no clear evidence of the detrimental effects of any drug (apart from alcohol) on safety and other job performance indicators. This is confirmed by the findings of a more recent review of the research (Macdonald, 1997) that concluded there was little evidence to suggest that workplace alcohol or other drug testing significantly reduces drug related work injuries or accidents. Whether drug use impacts on workplace safety is likely to be due to the intoxicating effects of the drug, however most workplace tests cannot determine intoxication. For example, testing “for cause” after an accident merely reveals that the person involved tested positive for previous drug use, it does not mean drug use played a causal role.

Drug Use and Absenteeism

A further rationale for workplace testing is that people who use drugs are more likely to take unapproved absences. Indeed there is research evidence to support this proposition. For example, in one of the studies cited above (Normand et al, 1990) found no association between positive drug tests and accidents, but workers who tested positive took more unexplained absences. However this study failed to take account of age effects. Younger people are more likely to use drugs and therefore test positive. However younger people in general, whether they use drugs or not, are more likely to take unexplained absences from work. When confounding factors such as age or background conditions of the workplace are taken into account, there is usually little difference in unexplained absenteeism or sickness rates between workers who test positive for drug use and those that test negative.

Drug Use and Productivity

It is often argued that drug users are likely to be less productive than non-drug users. However this argument ignores two fundamental research findings. First, in some cases, drug use can enhance aspects of performance that can result in increased productivity (this is the reason for drug testing in sports). As far as the workplace is concerned, the case of long distance truck drivers provides a good example. Research indicates long distance truck drivers are more likely to use amphetamines compared to the general work population (Hensher et al, 1991). This use is associated with the work conditions of drivers. Amphetamine use enables drivers to stay awake and drive longer hours, thereby earning more money while keeping freight rates at low level, which in turn brings more work. In this case, while drug use no doubt has a negative impact on health and safety, it can have a positive impact on productivity.

Second, the majority of Australians who use drugs are also likely to be employed. Therefore there is no doubt the negative health and safety outcomes associated with drug use can impact on the overall productivity of the workplace. However there is no evidence that indicates workplace drug testing is a suitable method for addressing this issue. On the contrary, the evidence that is available tends to indicate that workplace drug testing can have a *negative* impact on productivity. Shepard & Clifton (1998) examined the productivity of 63 communications and computer companies located in the US and found that those with drug testing programs were on average 29% less productive than their non testing counterparts. While this lower productivity rate may be due to the costs of the testing program (which can be significant), the researchers concluded that it was more likely to do with the attitudes of workers toward their employer. According to the researchers, drug testing without cause implied a lack of trust. Companies that did not test related to their employees more positively by exhibiting a high degree of trust, and in return received more effort and loyalty from their employees.

The negative effect of workplace testing on workers attitudes toward employers is also confirmed by psychological research that has examined workers' attitudes toward testing. Comer (2000) for example identified that while many US employees see testing as relatively non-invasive, they also perceive them to be unable to detect impairment or enhance safety, and have a negative view of their experience in taking drug test. Similarly Michael & Bateman (1990) identified that in general, job applicants hold negative views and intentions regarding organisations that conduct pre-employment tests.

Problems Associated With Workplace Drug Testing for Workers' Health, Safety and Welfare

There appears no doubt that the introduction of workplace drug testing programs can have a significant negative effect on worker morale. Many workers are aware that there are questions regarding the reliability of workplace testing and as such, are concerned about accusations based on an inaccurate test. In addition, due to the inability of drug testing to detect workplace impairment, employers who utilise testing in the workplace are rightly perceived by workers as taking on a policing role in a moral/legal issue, rather than a management role in a workplace safety and productivity issue. If a positive test results in punitive outcomes for workers (eg. dismissal, refusal of employment or demotion) there may be an additional negative impact on worker morale. Workers may not view workplace testing as a genuine attempt to improve the safety, health and welfare of workers and productivity of the work organisation. Rather workers may view testing as a disciplinary measure that extends employer control beyond the workplace.

In addition workers have legitimate concerns over their right to privacy. Before submitting to workplace tests workers may be required to report any current prescribed, or non-prescribed, medication use in order to control for false positives. However this information also gives the employer, or the potential employer, information regarding the health of the worker that the worker would not normally need to divulge. As such, workplace decisions such as recruitment and promotion

could be influenced by this information. In the case of laboratory analysis, the employer does not need to resort to self-reported medication. The lab analysis itself can provide an overview of health status, including pregnancy.

Workplace Testing May Disguise or Mask Drug Related Risk to OHS&W

The introduction of workplace testing programs can also have other negative outcomes for worker occupational health and safety. The main aim of drug testing is to eliminate drug related risk to OHS&W by eliminating drug use. However instead of eliminating use, workers may simply change their behaviour to make their drug use less detectable, without reducing the risk of drug related harm. For example, the most common form of testing program is pre-employment screening. Applicants are aware in advance that testing is a part of the employment processes and may simply abstain from drug use for a sufficient period, and then resume use after gaining employment. Alternatively they may utilise many of the over the counter medications that are useful for masking drug use (eg Sudafed). In addition samples can be contaminated or substituted at time of collection.

Of more concern however is that changes in workers' behaviour directed at avoiding detection rather than reducing risk, may have serious consequences for the health and safety of workers. For example, due to the long window of detection period of marijuana, a worker may shift from occasional use of marijuana to chronic (but less detectable) alcohol use, or use of other (more dangerous) illicit drugs with a shorter detectable period.

An examination of the issues that surround workplace drug testing leads to two main conclusions. Testing is at best an unreliable and ineffective method for addressing drug related risk to workplace safety and productivity. At worst, it is a counterproductive method that can have significant negative consequences for both workers and employers.

Alternatives to Drug Testing

There are a wide variety of responses that are available to workplaces to address the issue of drug related harm in the workplace. However it is beyond the scope of this paper to provide a detailed description of these responses. In general responses are effective when they not only identify drug related risks to safety (and productivity), but also address the source of these risks. As such, the management of drug related harm in the workplace is no different to the management of any other OHS&W risk. Utilising consultative processes involving workers and management, the risk of drug related harm can be identified and strategies implemented to reduce this risk. These strategies should include significant components of worker education and training that enhances the capacity of all employees to identify and deal with drug related harm in the workplace. However there are two important conditions to the success of any workplace program designed to reduce drug related harm. First, it is unlikely that any program, no matter how well designed, will be effective if the development process

does not include worker involvement and support. Second programs that focus on simplistic single strategies such as drug testing are not only likely to fail, but may also result in counterproductive outcomes.

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